

SEQUENCE LISTING

- <110> Steidler, Lothar Remaut, Erik R. Fiers, Walter R. USE OF A CYTOKINE-PRODUCING LACTOCOCCUS STRAIN TO TREAT COLI <120> TIS <130> 2676-4779US <150> PCT/EP99/07800 <151> 1999-10-06 <150> EP 98203529.7 <151> 1998-10-20 <160> 8 <170> PatentIn version 3.1 <210> 1 <211> 21 <212> DNA <213> Artificial Sequence <220> Description of Artificial Sequence: primer used for obtainin <223> g the plasmid pT1MIL10 <400> 1 cagtacagcc gggaagacaa t 21 <210> 2 <211> 25 <212> DNA <213> Artificial Sequence <220> Description of Artificial Sequence: primer used for obtainin <223> g the plasmid pT1MIL10
- <400> 2 gcactagtta gcttttcatt ttgat

```
<210>
       3
       21
<211>
<212>
      DNA
<213>
      Artificial Sequence
<220>
      Description of Artificial Sequence: primer used for obtainin
<223>
g the
       plasmid pT1TR5AH
<400>
ctggtccctt ctcttggtga c
<210>
       4
<211>
      53
<212>
      DNA
<213>
      Artificial Sequence
<220>
<223>
      Description of Artificial Sequence: primer used for obtainin
g the
       plasmid pT1TR5AH
<400> 4
ccactagtct attaatgatg atgatgatga tgcgcagtac ctgagtcctg ggg
  53
<210> 5
<211> 5230
<212> DNA
<213>
      Artificial Sequence
<220>
      Description of Artificial Sequence: plasmid pTREX1
<223>
<400>
gaattcgatt aagtcatctt acctctttta ttagtttttt cttataatct aatgataaca
tttttataat taatctataa accatatccc tctttggaat caaaatttat tatctactcc
  120
```

- tttgtagata tgttataata caagtatcag atctgggaga ccacaacggt ttcccactag 180
- aaataatttt gtttaacttt agaaaggaga tatacgcatg caggatatct ctagaatgga 240
- tccggctgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg ctgagcaata 300
- actagcataa ccccttgggg cctctaaacg ggtcttgagg ggttttttgc tgaaaggagg 360
- aactatatcc ggatgacctg caggcaagct ctagaatcga tacgattttg aagtggcaac
 420
- agataaaaaa aagcagttta aaattgttgc tgaactttta aaacaagcaa atacaatcat 480
- tgtcgcaaca gatagcgaca gagaaggcga aaacattgcc tggtcgatca ttcataaagc 540
- aaatgeettt tetaaagata aaaegtataa aagaetatgg ateaatagtt tagaaaaaga 600
- tgtgatccgt agcggttttc aaaatttgca accaggaatg aattactatc ccttttatca 660
- agaagcgcaa aagaaaaacg aaatgataca ccaatcagtg caaaaaaaga tataatggga 720
- gataagacgg ttcgtgttcg tgctgacttg caccatatca taaaaatcga aacagcaaag 780
- aatggcggaa acgtaaaaga agttatggaa ataagactta gaagcaaact taagagtgtg 840
- ttgatagtgc agtatcttaa aattttgtat aataggaatt gaagttaaat tagatgctaa 900
- aaatttgtaa ttaagaagga gtgattacat gaacaaaaat ataaaatatt ctcaaaactt 960
- tttaacgagt gaaaaagtac tcaaccaaat aataaaacaa ttgaatttaa aagaaaccga 1020
- taccgtttac gaaattggaa caggtaaagg gcatttaacg acgaaactgg ctaaaataag 1080

- taaacaggta acgtctattg aattagacag tcatctattc aacttatcgt cagaaaaatt 1140
- aaaactgaat actcgtgtca ctttaattca ccaagatatt ctacagtttc aattccctaa 1200
- caaacagagg tataaaattg ttgggagtat tccttaccat ttaagcacac aaattattaa 1260
- aaaagtggtt tttgaaagcc atgcgtctga catctatctg attgttgaag aaggattcta 1320
- caagcgtacc ttggatattc accgaacact agggttgctc ttgcacactc aagtctcgat 1380
- tcagcaattg cttaagctgc cagcggaatg ctttcatcct aaaccaaaag taaacagtgt 1440
- cttaataaaa cttacccgcc ataccacaga tgttccagat aaatattgga agctatatac 1500
- gtactttgtt tcaaaatggg tcaatcgaga atatcgtcaa ctgtttacta aaaatcagtt 1560
- tcatcaagca atgaaacacg ccaaagtaaa caatttaagt accgttactt atgagcaagt 1620
- attgtctatt tttaatagtt atctattatt taacgggagg aaataattct atgagtcgct 1680
- tttgtaaatt tggaaagtta cacgttacta aagggaatgt agataaatta ttaggtatac 1740
- tactgacage ttccaaggag ctaaagaggt ccctageget cttatcatgg ggaagetegg 1800
- atcatatgca agacaaaata aactcgcaac agcacttgga gaaatgggac gaatcgagaa 1860
- aaccctcttt acgctggatt acatatctaa taaagccgta aggagacggg ttcaaaaagg 1920
- tttaaataaa ggagaagcaa tcaatgcatt agctagaact atattttttg gacaacgtgg 1980
- agaatttaga gaacgtgctc tccaagacca gttacaaaga gctagtgcac taaacataat 2040

- tattaacgct ataagtgtgt ggaacactgt atatatggaa aaagccgtag aagaattaaa 2100
- agcaagagga gaatttagag aagatttaat gccatatgcg tggccgttag gatgggaaca 2160
- tatcaatttt cttggagaat acaaatttga aggattacat gacactgggc aaatgaattt 2220
- acgtccttta cgtataaaag agccgtttta ttcttaatat aacggctctt tttatagaaa 2280
- aaatccttag cgtggttttt ttccgaaatg ctggcggtac cccaagaatt agaaatgagt 2340
- agatcaaatt attcacgaat agaatcagga aaatcagatc caaccataaa aacactagaa 2400
- caaattgcaa agttaactaa ctcaacgcta gtagtggatt taatcccaaa tgagccaaca 2460
- gaaccagagc cagaaacaga atcagaacaa gtaacattgg atttagaaat ggaagaagaa 2520
- aaaagcaatg acttcgtgtg aataatgcac gaaatcgttg cttattttt tttaaaagcg 2580
- gtatactaga tataacgaaa caacgaactg aatagaaacg aaaaaagagc catgacacat 2640
- ttataaaatg tttgacgaca ttttataaat gcatagcccg ataagattgc caaaccaacg 2700
- cttatcagtt agtcagatga actcttccct cgtaagaagt tatttaatta actttgtttg 2760
- aagacggtat ataaccgtac tatcattata tagggaaatc agagagtttt caagtatcta 2820
- agctactgaa tttaagaatt gttaagcaat caatcggaaa tcgtttgatt gctttttttg 2880
- tattcattta tagaaggtgg agtttgtatg aatcatgatg aatgtaaaac ttatataaaa 2940
- aatagtttat tggagataag aaaattagca aatatctata cactagaaac gtttaagaaa 3000

- gagttagaaa agagaaatat ctacttagaa acaaaatcag ataagtattt ttcttcggag 3060
- ggggaagatt atatataa gttaatagaa aataacaaaa taatttattc gattagtgga 3120
- aaaaaattga cttataaagg aaaaaaatct ttttcaaaac atgcaatatt gaaacagttg 3180
- aatgaaaaag caaaccaagt taattaaaca acctatttta taggatttat aggaaaggag 3240
- aacagctgaa tgaatatccc ttttgttgta gaaactgtgc ttcatgacgg cttgttaaag 3300
- tacaaattta aaaatagtaa aattcgctca atcactacca agccaggtaa aagcaaaggg 3360
- gctatttttg cgtatcgctc aaaatcaagc atgattggcg gtcgtggtgt tgttctgact 3420
- tccgaggaag cgattcaaga aaatcaagat acatttacac attggacacc caacgtttat 3480
- cgttatggaa cgtatgcaga cgaaaaccgt tcatacacga aaggacattc tgaaaacaat 3540
- ttaagacaaa tcaatacctt ctttattgat tttgatattc acacggcaaa agaaactatt 3600
- tcagcaagcg atattttaac aaccgctatt gatttaggtt ttatgcctac tatgattatc 3660
- aaatctgata aaggttatca agcatatttt gttttagaaa cgccagtcta tgtgacttca 3720
- aaatcagaat ttaaatctgt caaagcagcc aaaataattt cgcaaaatat ccgagaatat 3780
- tttggaaagt ctttgccagt tgatctaacg tgtaatcatt ttggtattgc tcgcatacca 3840
- agaacggaca atgtagaatt ttttgatcct aattaccgtt attctttcaa agaatggcaa 3900
- gattggtctt tcaaacaaac agataataag ggctttactc gttcaagtct aacggtttta 3960

- agcggtacag aaggcaaaaa acaagtagat gaaccctggt ttaatctctt attgcacgaa 4020
- acgaaatttt caggagaaaa gggtttaata gggcgtaata acgtcatgtt taccctctct 4080
- aataatcgat tagatcaacc cttagaagaa aaagaagtaa tcaaaattgt tagaagtgcc 4200
- tattcagaaa actatcaagg ggctaatagg gaatacatta ccattctttg caaagcttgg 4260
- gtatcaagtg atttaaccag taaagattta tttgtccgtc aagggtggtt taaattcaag 4320
- aaaaaaagaa gcgaacgtca acgtgttcat ttgtcagaat ggaaagaaga tttaatggct 4380
- tatattagcg aaaaaagcga tgtatacaag ccttatttag tgacgaccaa aaaagagatt 4440
- agagaagtgc taggcattcc tgaacggaca ttagataaat tgctgaaggt actgaaggcg 4500
- aatcaggaaa ttttctttaa gattaaacca ggaagaaatg gtggcattca acttgctagt 4560
- gttaaatcat tgttgctatc gatcattaaa gtaaaaaaag aagaaaaaga aagctatata 4620
- aaggcgctga caaattcttt tgacttagag catacattca ttcaagagac tttaaacaag 4680
- ctagcagaac gccctaaaac ggacacacaa ctcgatttgt ttagctatga tacaggctga 4740
- aaataaaacc cgcactatgc cattacattt atatctatga tacgtgtttg ttttttcttt 4800
- gctgtttagc gaatgattag cagaaatata cagagtaaga ttttaattaa ttattagggg 4860
- gagaaggaga gagtagcccg aaaactttta gttggcttgg actgaacgaa gtgagggaaa 4920

- ggctactaaa acgtcgaggg gcagtgagag cgaagcgaac acttgatttt ttaattttct 4980
- atcttttata ggtcattaga gtatacttat ttgtcctata aactatttag cagcataata 5040
- gatttattga ataggtcatt taagttgagc atattagagg aggaaaatct tggagaaata 5100
- tttgaagaac ccgattacat ggattggatt agttcttgtg gttacgtggt ttttaactaa 5160
- aagtagtgaa tttttgattt ttggtgtgtg tgtcttgttg ttagtatttg ctagtcaaag 5220

tgattaaata 5230

- <210> 6
- <211> 5906
- <212> DNA
- <213> Artificial Sequence
- <220>
- <223> Description of Artificial Sequence: plamsid pT1NX
- <400> 6
- gaattcgatt aagtcatctt acctctttta ttagtttttt cttataatct aatgataaca 60
- tttttataat taatctataa accatatccc tctttggaat caaaatttat tatctactcc 120
- tttgtagata tgttataata caagtatcag atctgggaga ccacaacggt ttcccactag
- aaataatttt gtttaacttt agaaaggaga tatacgcatg aaaaaaaaga ttatctcagc 240
- tattttaatg totacagtca tactttctgc tgcagccccg ttgtcaggtg tttacgccgg 300
- cgacggatcc aaaagaggaa gacaataaca agcctggcaa agaagacaat aacaagcctg
- gcaaagaaga caataacaag cctggcaaag aagacaacaa caagcctggc aaagaagaca 420

- acaacaagcc tggtaaagaa gacaacaaca agcctggcaa agaagacggc aacaagcctg 480
- gtaaagaaga caacaaaaaa cctggtaaag aagatggcaa caagcctggt aaagaagaca 540
- acaaaaacc tggtaaagaa gacggcaaca agcctggcaa agaagatggc aacaaacctg 600
- gtaaagaaga tggtaacgga gtacatgtcg ttaaacctgg tgatacagta aatgacattg 660
- caaaagcaaa cggcactact gctgacaaaa ttgctgcaga taacaaatta gctgataaaa 720
- acatgatcaa acctggtcaa gaacttgttg ttgataagaa gcaaccagca aaccatgcag 780
- atgctaacaa agctcaagca ttaccagaaa ctggcgaaga aaatccattc atcggtacaa 840
- ctgtatttgg tggattatca ttagccttag gtgcagcgtt attagctgga cgtcgtcgcg 900
- aactataact agtagatccg gctgctaaca aagcccgaaa ggaagctgag ttggctgctg 960
- ccaccgctga gcaataacta gcataacccc ttggggcctc taaacgggtc ttgaggggtt 1020
- ttttgctgaa aggaggaact atatccggat gacctgcagg caagctctag aatcgatacg 1080
- attttgaagt ggcaacagat aaaaaaaagc agtttaaaat tgttgctgaa cttttaaaac 1140
- aagcaaatac aatcattgtc gcaacagata gcgacagaga aggcgaaaac attgcctggt
- cgatcattca taaagcaaat gccttttcta aagataaaac gtataaaaga ctatggatca 1260
- atagtttaga aaaagatgtg atccgtagcg gttttcaaaa tttgcaacca ggaatgaatt 1320
- actatecett ttateaagaa gegeaaaaga aaaaegaaat gataeaceaa teagtgeaaa 1380

- aaaagatata atgggagata agacggttcg tgttcgtgct gacttgcacc atatcataaa 1440
- aatcgaaaca gcaaagaatg gcggaaacgt aaaagaagtt atggaaataa gacttagaag 1500
- caaacttaag agtgtgttga tagtgcagta tcttaaaatt ttgtataata ggaattgaag 1560
- ttaaattaga tgctaaaaat ttgtaattaa gaaggagtga ttacatgaac aaaaatataa 1620
- aatattetea aaaettttta aegagtgaaa aagtaeteaa eeaaataata aaaeaattga 1680
- atttaaaaga aaccgatacc gtttacgaaa ttggaacagg taaagggcat ttaacgacga 1740
- aactggctaa aataagtaaa caggtaacgt ctattgaatt agacagtcat ctattcaact 1800
- tatcgtcaga aaaattaaaa ctgaatactc gtgtcacttt aattcaccaa gatattctac 1860
- agtttcaatt ccctaacaaa cagaggtata aaattgttgg gagtattcct taccatttaa 1920
- gcacacaaat tattaaaaaa gtggtttttg aaagccatgc gtctgacatc tatctgattg 1980
- ttgaagaagg attctacaag cgtaccttgg atattcaccg aacactaggg ttgctcttgc 2040
- acactcaagt ctcgattcag caattgctta agctgccagc ggaatgcttt catcctaaac 2100
- caaaagtaaa cagtgtctta ataaaactta cccgccatac cacagatgtt ccagataaat 2160
- attggaaget atatacgtae tttgtttcaa aatgggtcaa tcgagaatat cgtcaactgt 2220
- ttactaaaaa tcagtttcat caagcaatga aacacgccaa agtaaacaat ttaagtaccg 2280
- ttacttatga gcaagtattg tctattttta atagttatct attatttaac gggaggaaat 2340

- aattctatga gtcgcttttg taaatttgga aagttacacg ttactaaagg gaatgtagat 2400
- aaattattag gtatactact gacagettee aaggagetaa agaggteeet agegetetta 2460
- tcatggggaa gctcggatca tatgcaagac aaaataaact cgcaacagca cttggagaaa 2520
- tgggacgaat cgagaaaacc ctctttacgc tggattacat atctaataaa gccgtaagga 2580
- gacgggttca aaaaggttta aataaaggag aagcaatcaa tgcattagct agaactatat 2640
- tttttggaca acgtggagaa tttagagaac gtgctctcca agaccagtta caaagagcta 2700
- gtgcactaaa cataattatt aacgctataa gtgtgtggaa cactgtatat atggaaaaag 2760
- ccgtagaaga attaaaagca agaggagaat ttagagaaga tttaatgcca tatgcgtggc 2820
- cgttaggatg ggaacatatc aattttcttg gagaatacaa atttgaagga ttacatgaca 2880
- ctgggcaaat gaatttacgt cctttacgta taaaagagcc gttttattct taatataacg 2940
- gctcttttta tagaaaaaat ccttagcgtg gtttttttcc gaaatgctgg cggtacccca 3000
- agaattagaa atgagtagat caaattattc acgaatagaa tcaggaaaat cagatccaac 3060
- cataaaaaca ctagaacaaa ttgcaaagtt aactaactca acgctagtag tggatttaat 3120
- cccaaatgag ccaacagaac cagagccaga aacagaatca gaacaagtaa cattggattt 3180
- agaaatggaa gaagaaaaa gcaatgactt cgtgtgaata atgcacgaaa tcgttgctta 3240
- tttttttta aaagcggtat actagatata acgaaacaac gaactgaata gaaacgaaaa 3300

- aagagccatg acacatttat aaaatgtttg acgacatttt ataaatgcat agcccgataa 3360
- gattgccaaa ccaacgctta tcagttagtc agatgaactc ttccctcgta agaagttatt 3420
- taattaactt tgtttgaaga cggtatataa ccgtactatc attatatagg gaaatcagag 3480
- agttttcaag tatctaagct actgaattta agaattgtta agcaatcaat cggaaatcgt 3540
- ttgattgctt tttttgtatt catttataga aggtggagtt tgtatgaatc atgatgaatg 3600
- taaaacttat ataaaaata gtttattgga gataagaaaa ttagcaaata tctatacact 3660
- agaaacgttt aagaaagagt tagaaaagag aaatatctac ttagaaacaa aatcagataa 3720
- gtatttttct tcggaggggg aagattatat atataagtta atagaaaata acaaaataat 3780
- ttattcgatt agtggaaaaa aattgactta taaaggaaaa aaatcttttt caaaacatgc 3840
- aatattgaaa cagttgaatg aaaaagcaaa ccaagttaat taaacaacct attttatagg 3900
- atttatagga aaggagaaca gctgaatgaa tatccctttt gttgtagaaa ctgtgcttca 3960
- tgacggcttg ttaaagtaca aatttaaaaa tagtaaaatt cgctcaatca ctaccaagcc 4020
- aggtaaaagc aaaggggcta tttttgcgta tcgctcaaaa tcaagcatga ttggcggtcg 4080
- tggtgttgtt ctgacttccg aggaagcgat tcaagaaaat caagatacat ttacacattg 4140
- gacacccaac gtttatcgtt atggaacgta tgcagacgaa aaccgttcat acacgaaagg 4200
- acattetgaa aacaatttaa gacaaatcaa taeettettt attgattttg atatteacae 4260

ggcaaaagaa actatttcag caagcgatat tttaacaacc gctattgatt taggttttat 4320

- gcctactatg attatcaaat ctgataaagg ttatcaagca tattttgttt tagaaacgcc 4380
- agtctatgtg acttcaaaat cagaatttaa atctgtcaaa gcagccaaaa taatttcgca 4440
- aaatatccga gaatattttg gaaagtcttt gccagttgat ctaacgtgta atcattttgg 4500
- tattgctcgc ataccaagaa cggacaatgt agaatttttt gatcctaatt accgttattc 4560
- tttcaaagaa tggcaagatt ggtctttcaa acaaacagat aataagggct ttactcgttc 4620
- aagtctaacg gttttaagcg gtacagaagg caaaaaacaa gtagatgaac cctggtttaa 4680
- tctcttattg cacgaaacga aattttcagg agaaaagggt ttaatagggc gtaataacgt 4740
- catgtttacc ctctctttag cctactttag ttcaggctat tcaatcgaaa cgtgcgaata 4800
- taatatgttt gagtttaata atcgattaga tcaaccctta gaagaaaaag aagtaatcaa 4860
- aattgttaga agtgcctatt cagaaaacta tcaaggggct aatagggaat acattaccat 4920
- tctttgcaaa gcttgggtat caagtgattt aaccagtaaa gatttatttg tccgtcaagg 4980
- gtggtttaaa ttcaagaaaa aaagaagcga acgtcaacgt gttcatttgt cagaatggaa 5040
- agaagattta atggcttata ttagcgaaaa aagcgatgta tacaagcctt atttagtgac 5100
- gaccaaaaaa gagattagag aagtgctagg cattcctgaa cggacattag ataaattgct 5160
- gaaggtactg aaggcgaatc aggaaatttt ctttaagatt aaaccaggaa gaaatggtgg 5220

cattcaactt gctagtgtta aatcattgtt gctatcgatc attaaagtaa aaaaagaaga 5280 aaaagaaagc tatataaagg cgctgacaaa ttcttttgac ttagagcata cattcattca 5340 agagacttta aacaagctag cagaacgccc taaaacggac acacaactcg atttgtttag 5400 ctatgataca ggctgaaaat aaaacccgca ctatgccatt acatttatat ctatgatacg 5460 tgtttgtttt ttctttgctg tttagcgaat gattagcaga aatatacaga gtaagatttt aattaattat tagggggaga aggagagagt agcccgaaaa cttttagttg gcttggactg 5580 aacgaagtga gggaaaggct actaaaacgt cgaggggcag tgagagcgaa gcgaacactt 5640 gattttttaa ttttctatct tttataggtc attagagtat acttatttgt cctataaact 5700 atttagcagc ataatagatt tattgaatag gtcatttaag ttgagcatat tagaggagga 5760 aaatcttgga gaaatatttg aagaacccga ttacatggat tggattagtt cttgtggtta 5820 cgtggttttt aactaaaagt agtgaatttt tgatttttgg tgtgtgtc ttgttgttag 5880 tatttgctag tcaaagtgat taaata 5906 <210> 7 <211> 5770 <212> DNA <213> Artificial Sequence <220> Description of Artificial Sequence: plasmid pT1MIL10 <223> <400> 7 gaattcgatt aagtcatctt acctctttta ttagtttttt cttataatct aatgataaca

- tttttataat taatctataa accatatccc tctttggaat caaaatttat tatctactcc 120
- tttgtagata tgttataata caagtatcag atctgggaga ccacaacggt ttcccactag 180
- aaataatttt gtttaacttt agaaaggaga tatacgcatg aaaaaaaaga ttatctcagc 240
- tattttaatg totacagtca tactttctgc tgcagccccg ttgtcaggtg tttacgccca 300
- gtacagccgg gaagacaata actgcaccca cttcccagtc ggccagagcc acatgctcct 360
- agagetgegg actgeettea geeaggtgaa gaetttettt caaacaaagg accagetgga 420
- caacatactg ctaaccgact ccttaatgca ggactttaag ggttacttgg gttgccaagc 480
- cttatcggaa atgatccagt tttacctggt agaagtgatg ccccaggcag agaagcatgg 540
- cccagaaatc aaggagcatt tgaattccct gggtgagaag ctgaagaccc tcaggatgcg 600
- gctgaggcgc tgtcatcgat ttctcccctg tgaaaataag agcaaggcag tggagcaggt
- gaagagtgat tttaataagc tccaagacca aggtgtctac aaggccatga atgaatttga 720
- catcttcatc aactgcatag aagcatacat gatgatcaaa atgaaaagct aactagtaga 780
- tccggctgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg ctgagcaata 840
- actagcataa ccccttgggg cctctaaacg ggtcttgagg ggttttttgc tgaaaggagg 900
- aactatatcc ggatgacctg caggcaagct ctagaatcga tacgattttg aagtggcaac 960
- agataaaaaa aagcagttta aaattgttgc tgaactttta aaacaagcaa atacaatcat

- tgtcgcaaca gatagcgaca gagaaggcga aaacattgcc tggtcgatca ttcataaagc 1080
- aaatgccttt tctaaagata aaacgtataa aagactatgg atcaatagtt tagaaaaaga 1140
- tgtgatccgt agcggttttc aaaatttgca accaggaatg aattactatc ccttttatca 1200
- agaagegeaa aagaaaaaeg aaatgataca eeaateagtg eaaaaaaaga tataatggga 1260
- gataagacgg ttcgtgttcg tgctgacttg caccatatca taaaaatcga aacagcaaag 1320
- aatggcggaa acgtaaaaga agttatggaa ataagactta gaagcaaact taagagtgtg 1380
- ttgatagtgc agtatcttaa aattttgtat aataggaatt gaagttaaat tagatgctaa 1440
- aaatttgtaa ttaagaagga gtgattacat gaacaaaaat ataaaatatt ctcaaaactt 1500
- tttaacgagt gaaaaagtac tcaaccaaat aataaaacaa ttgaatttaa aagaaaccga 1560
- taccgtttac gaaattggaa caggtaaagg gcatttaacg acgaaactgg ctaaaataag 1620
- taaacaggta acgtctattg aattagacag tcatctattc aacttatcgt cagaaaaatt 1680
- aaaactgaat actcgtgtca ctttaattca ccaagatatt ctacagtttc aattccctaa 1740
- caaacagagg tataaaattg ttgggagtat tccttaccat ttaagcacac aaattattaa 1800
- aaaagtggtt tttgaaagcc atgcgtctga catctatctg attgttgaag aaggattcta 1860
- caagegtace ttggatatte accgaacact agggttgete ttgcacacte aagtetegat 1920
- tcaqcaattq cttaaqctqc cagcggaatg ctttcatcct aaaccaaaag taaacagtgt

- cttaataaaa cttacccgcc ataccacaga tgttccagat aaatattgga agctatatac 2040
- gtactttgtt tcaaaatggg tcaatcgaga atatcgtcaa ctgtttacta aaaatcagtt 2100
- tcatcaagca atgaaacacg ccaaagtaaa caatttaagt accgttactt atgagcaagt 2160
- attgtctatt tttaatagtt atctattatt taacgggagg aaataattct atgagtcgct 2220
- tttgtaaatt tggaaagtta cacgttacta aagggaatgt agataaatta ttaggtatac 2280
- tactgacage ttccaaggag ctaaagaggt cectageget ettateatgg ggaagetegg 2340
- atcatatgca agacaaata aactcgcaac agcacttgga gaaatgggac gaatcgagaa 2400
- aaccctctt acgctggatt acatatctaa taaagccgta aggagacggg ttcaaaaagg 2460
- tttaaataaa ggagaagcaa tcaatgcatt agctagaact atattttttg gacaacgtgg 2520
- agaatttaga gaacgtgctc tccaagacca gttacaaaga gctagtgcac taaacataat 2580
- tattaacgct ataagtgtgt ggaacactgt atatatggaa aaagccgtag aagaattaaa 2640
- agcaagagga gaatttagag aagatttaat gccatatgcg tggccgttag gatgggaaca 2700
- tatcaatttt cttggagaat acaaatttga aggattacat gacactgggc aaatgaattt 2760
- acgtccttta cgtataaaag agccgtttta ttcttaatat aacggctctt tttatagaaa 2820
- aaatccttag cgtggttttt ttccgaaatg ctggcggtac cccaagaatt agaaatgagt 2880
- agatcaaatt attcacgaat agaatcagga aaatcagatc caaccataaa aacactagaa

- caaattgcaa agttaactaa ctcaacgcta gtagtggatt taatcccaaa tgagccaaca 3000
- gaaccagagc cagaaacaga atcagaacaa gtaacattgg atttagaaat ggaagaagaa 3060
- aaaagcaatg acttcgtgtg aataatgcac gaaatcgttg cttattttt tttaaaagcg 3120
- gtatactaga tataacgaaa caacgaactg aatagaaacg aaaaaagagc catgacacat 3180
- ttataaaatg tttgacgaca ttttataaat gcatagcccg ataagattgc caaaccaacg 3240
- cttatcagtt agtcagatga actcttccct cgtaagaagt tatttaatta actttgtttg 3300
- aagacggtat ataaccgtac tatcattata tagggaaatc agagagtttt caagtatcta 3360
- agctactgaa tttaagaatt gttaagcaat caatcggaaa tcgtttgatt gctttttttg 3420
- tattcattta tagaaggtgg agtttgtatg aatcatgatg aatgtaaaac ttatataaaa 3480
- aatagtttat tggagataag aaaattagca aatatctata cactagaaac gtttaagaaa 3540
- gagttagaaa agagaaatat ctacttagaa acaaaatcag ataagtattt ttcttcggag 3600
- ggggaagatt atatataa gttaatagaa aataacaaaa taatttattc gattagtgga 3660
- aaaaaattga cttataaagg aaaaaaatct ttttcaaaac atgcaatatt gaaacagttg 3720
- aatgaaaaag caaaccaagt taattaaaca acctatttta taggatttat aggaaaggag 3780
- aacagctgaa tgaatatccc ttttgttgta gaaactgtgc ttcatgacgg cttgttaaag 3840
- tacaaattta aaaatagtaa aattcgctca atcactacca agccaggtaa aagcaaaggg

- gctatttttg cgtatcgctc aaaatcaagc atgattggcg gtcgtggtgt tgttctgact 3960
- tccgaggaag cgattcaaga aaatcaagat acatttacac attggacacc caacgtttat 4020
- cgttatggaa cgtatgcaga cgaaaaccgt tcatacacga aaggacattc tgaaaacaat 4080
- ttaagacaaa tcaatacctt ctttattgat tttgatattc acacggcaaa agaaactatt 4140
- tcagcaagcg atattttaac aaccgctatt gatttaggtt ttatgcctac tatgattatc 4200
- aaatctgata aaggttatca agcatatttt gttttagaaa cgccagtcta tgtgacttca 4260
- aaatcagaat ttaaatctgt caaagcagcc aaaataattt cgcaaaatat ccgagaatat 4320
- tttggaaagt ctttgccagt tgatctaacg tgtaatcatt ttggtattgc tcgcatacca 4380
- agaacggaca atgtagaatt ttttgatcct aattaccgtt attctttcaa agaatggcaa 4440
- gattggtctt tcaaacaaac agataataag ggctttactc gttcaagtct aacggtttta 4500
- agcggtacag aaggcaaaaa acaagtagat gaaccctggt ttaatctctt attgcacgaa 4560
- acgaaatttt caggagaaaa gggtttaata gggcgtaata acgtcatgtt taccctctct 4620
- aataatcgat tagatcaacc cttagaagaa aaagaagtaa tcaaaattgt tagaagtgcc 4740
- tattcagaaa actatcaagg ggctaatagg gaatacatta ccattctttg caaagcttgg 4800
- gtatcaagtg atttaaccag taaagattta tttgtccgtc aagggtggtt taaattcaag

- aaaaaaagaa gcgaacgtca acgtgttcat ttgtcagaat ggaaagaaga tttaatggct 4920
- tatattagcg aaaaaagcga tgtatacaag ccttatttag tgacgaccaa aaaagagatt 4980
- agagaagtgc taggcattcc tgaacggaca ttagataaat tgctgaaggt actgaaggcg 5040
- aatcaggaaa ttttctttaa gattaaacca ggaagaaatg gtggcattca acttgctagt 5100
- gttaaatcat tgttgctatc gatcattaaa gtaaaaaaag aagaaaaaga aagctatata 5160
- aaggcgctga caaattcttt tgacttagag catacattca ttcaagagac tttaaacaag 5220
- ctagcagaac gccctaaaac ggacacacaa ctcgatttgt ttagctatga tacaggctga 5280
- aaataaaacc cgcactatgc cattacattt atatctatga tacgtgtttg ttttttcttt 5340
- gctgtttagc gaatgattag cagaaatata cagagtaaga ttttaattaa ttattagggg 5400
- gagaaggaga gagtagcccg aaaactttta gttggcttgg actgaacgaa gtgagggaaa 5460
- ggctactaaa acgtcgaggg gcagtgagag cgaagcgaac acttgatttt ttaattttct 5520
- atcttttata ggtcattaga gtatacttat ttgtcctata aactatttag cagcataata 5580
- gatttattga ataggtcatt taagttgagc atattagagg aggaaaatct tggagaaata 5640
- tttgaagaac ccgattacat ggattggatt agttcttgtg gttacgtggt ttttaactaa 5700
- aagtagtgaa tttttgattt ttggtgtgtg tgtcttgttg ttagtatttg ctagtcaaag 5760

tgattaaata

- <210> 8
- <211> 5870
- <212> DNA
- <213> Artificial Sequence
- <220>
- <223> Description of Artificial Sequence: plasmid pT1TR5AH
- <400> 8
- gaattcgatt aagtcatctt acctctttta ttagtttttt cttataatct aatgataaca 60
- tttttataat taatctataa accatatccc tctttggaat caaaatttat tatctactcc 120
- tttgtagata tgttataata caagtatcag atctgggaga ccacaacggt ttcccactag 180
- aaataatttt gtttaacttt agaaaggaga tatacgcatg aaaaaaaaga ttatctcagc 240
- tattttaatg tctacagtca tactttctgc tgcagccccg ttgtcaggtg tttacgccct 300
- ggtcccttct cttggtgacc gggagaagag ggatagcttg tgtccccaag gaaagtatgt 360
- ccattctaag aacaattcca tctgctgcac caagtgccac aaaggaacct acttggtgag 420
- tgactgtccg agcccagggc gggatacagt ctgcagggag tgtgaaaagg gcacctttac 480
- ggcttcccag aattacctca ggcagtgtct cagttgcaag acatgtcgga aagaaatgtc 540
- ccaggtggag atctctcctt gccaagctga caaggacacg gtgtgtggct gtaaggagaa 600
- ccagttccaa cgctacctga gtgagacaca cttccagtgc gtggactgca gcccctgctt 660
- caacggcacc gtgacaatcc cctgtaagga gactcagaac accgtgtgta actgccatgc 720

- agggttettt etgagagaaa gtgagtgegt eeettgeage eaetgeaaga aaaatgagga 780
- gtgtatgaag ttgtgcctac ctcctccgct tgcaaatgtc acaaaccccc aggactcagg 840
- tactgcgcat catcatcatc atcattaata gactagtaga tccggctgct aacaaagccc 900
- gaaaggaagc tgagttggct gctgccaccg ctgagcaata actagcataa ccccttgggg 960
- cctctaaacg ggtcttgagg ggttttttgc tgaaaggagg aactatatcc ggatgacctg 1020
- caggcaagct ctagaatcga tacgattttg aagtggcaac agataaaaaa aagcagttta 1080
- aaattgttgc tgaactttta aaacaagcaa atacaatcat tgtcgcaaca gatagcgaca 1140
- gagaaggcga aaacattgcc tggtcgatca ttcataaagc aaatgccttt tctaaagata 1200
- aaacgtataa aagactatgg atcaatagtt tagaaaaaga tgtgatccgt agcggttttc 1260
- aaaatttgca accaggaatg aattactatc ccttttatca agaagcgcaa aagaaaaacg 1320
- aaatgataca ccaatcagtg caaaaaaaga tataatggga gataagacgg ttcgtgttcg 1380
- tgctgacttg caccatatca taaaaatcga aacagcaaag aatggcggaa acgtaaaaga 1440
- agttatggaa ataagactta gaagcaaact taagagtgtg ttgatagtgc agtatcttaa 1500
- aattttgtat aataggaatt gaagttaaat tagatgctaa aaatttgtaa ttaagaagga 1560
- gtgattacat gaacaaaat ataaaatatt ctcaaaactt tttaacgagt gaaaaagtac 1620
- tcaaccaaat aataaaacaa ttgaatttaa aagaaaccga taccgtttac gaaattggaa 1680

- caggtaaagg gcatttaacg acgaaactgg ctaaaataag taaacaggta acgtctattg 1740
- aattagacag tcatctattc aacttatcgt cagaaaaatt aaaactgaat actcgtgtca 1800
- ctttaattca ccaagatatt ctacagtttc aattccctaa caaacagagg tataaaattg 1860
- ttgggagtat tccttaccat ttaagcacac aaattattaa aaaagtggtt tttgaaagcc 1920
- atgcgtctga catctatctg attgttgaag aaggattcta caagcgtacc ttggatattc 1980
- accgaacact agggttgctc ttgcacactc aagtctcgat tcagcaattg cttaagctgc 2040
- cageggaatg ettteateet aaaceaaaag taaacagtgt ettaataaaa ettaeeegee 2100
- ataccacaga tgttccagat aaatattgga agctatatac gtactttgtt tcaaaatggg 2160
- tcaatcgaga atatcgtcaa ctgtttacta aaaatcagtt tcatcaagca atgaaacacg 2220
- ccaaagtaaa caatttaagt accgttactt atgagcaagt attgtctatt tttaatagtt 2280
- atctattatt taacgggagg aaataattct atgagtcgct tttgtaaatt tggaaagtta 2340
- cacgttacta aagggaatgt agataaatta ttaggtatac tactgacagc ttccaaggag 2400
- ctaaagaggt ccctagcgct cttatcatgg ggaagctcgg atcatatgca agacaaaata 2460
- aactcgcaac agcacttgga gaaatgggac gaatcgagaa aaccctcttt acgctggatt 2520
- acatatctaa taaagccgta aggagacggg ttcaaaaagg tttaaataaa ggagaagcaa 2580
- tcaatgcatt agctagaact atattttttg gacaacgtgg agaatttaga gaacgtgctc 2640

- tccaagacca gttacaaaga gctagtgcac taaacataat tattaacgct ataagtgtgt 2700
- ggaacactgt atatatggaa aaagccgtag aagaattaaa agcaagagga gaatttagag 2760
- aagatttaat gccatatgcg tggccgttag gatgggaaca tatcaatttt cttggagaat 2820
- acaaatttga aggattacat gacactgggc aaatgaattt acgtccttta cgtataaaag 2880
- agccgtttta ttcttaatat aacggctctt tttatagaaa aaatccttag cgtggttttt 2940
- ttccgaaatg ctggcggtac cccaagaatt agaaatgagt agatcaaatt attcacgaat 3000
- agaatcagga aaatcagatc caaccataaa aacactagaa caaattgcaa agttaactaa 3060
- ctcaacgcta gtagtggatt taatcccaaa tgagccaaca gaaccagagc cagaaacaga 3120
- atcagaacaa gtaacattgg atttagaaat ggaagaagaa aaaagcaatg acttcgtgtg 3180
- aataatgcac gaaatcgttg cttattttt tttaaaagcg gtatactaga tataacgaaa 3240
- caacgaactg aatagaaacg aaaaaagagc catgacacat ttataaaatg tttgacgaca 3300
- ttttataaat gcatagcccg ataagattgc caaaccaacg cttatcagtt agtcagatga 3360
- actcttccct cgtaagaagt tatttaatta actttgtttg aagacggtat ataaccgtac 3420
- tatcattata tagggaaatc agagagtttt caagtatcta agctactgaa tttaagaatt 3480
- gttaagcaat caatcggaaa tcgtttgatt gctttttttg tattcattta tagaaggtgg 3540
- agtttgtatg aatcatgatg aatgtaaaac ttatataaaa aatagtttat tggagataag 3600

- aaaattagca aatatctata cactagaaac gtttaagaaa gagttagaaa agagaaatat 3660
- ctacttagaa acaaaatcag ataagtattt ttcttcggag ggggaagatt atatatata 3720
- gttaatagaa aataacaaaa taatttatto gattagtgga aaaaaattga ottataaagg 3780
- aaaaaaatct ttttcaaaac atgcaatatt gaaacagttg aatgaaaaag caaaccaagt 3840
- taattaaaca acctatttta taggatttat aggaaaggag aacagctgaa tgaatatccc 3900
- ttttgttgta gaaactgtgc ttcatgacgg cttgttaaag tacaaattta aaaatagtaa 3960
- aattcgctca atcactacca agccaggtaa aagcaaaggg gctatttttg cgtatcgctc 4020
- aaaatcaagc atgattggcg gtcgtggtgt tgttctgact tccgaggaag cgattcaaga 4080
- aaatcaagat acatttacac attggacacc caacgtttat cgttatggaa cgtatgcaga 4140
- cgaaaaccgt tcatacacga aaggacattc tgaaaacaat ttaagacaaa tcaatacctt 4200
- ctttattgat tttgatattc acacggcaaa agaaactatt tcagcaagcg atattttaac 4260
- aaccgctatt gatttaggtt ttatgcctac tatgattatc aaatctgata aaggttatca 4320
- agcatatttt gttttagaaa cgccagtcta tgtgacttca aaatcagaat ttaaatctgt 4380
- caaagcagcc aaaataattt cgcaaaatat ccgagaatat tttggaaagt ctttgccagt 4440
- tgatctaacg tgtaatcatt ttggtattgc tcgcatacca agaacggaca atgtagaatt 4500
- ttttgatcct aattaccgtt attctttcaa agaatggcaa gattggtctt tcaaacaaac 4560

- agataataag ggctttactc gttcaagtct aacggtttta agcggtacag aaggcaaaaa 4620
- acaagtagat gaaccctggt ttaatctctt attgcacgaa acgaaatttt caggagaaaa 4680
- gggtttaata gggcgtaata acgtcatgtt taccctctct ttagcctact ttagttcagg 4740
- ctattcaatc gaaacgtgcg aatataatat gtttgagttt aataatcgat tagatcaacc 4800
- cttagaagaa aaagaagtaa tcaaaattgt tagaagtgcc tattcagaaa actatcaagg 4860
- ggctaatagg gaatacatta ccattctttg caaagcttgg gtatcaagtg atttaaccag 4920
- taaagattta tttgtccgtc aagggtggtt taaattcaag aaaaaaagaa gcgaacgtca 4980
- acgtgttcat ttgtcagaat ggaaagaaga tttaatggct tatattagcg aaaaaagcga 5040
- tgtatacaag ccttatttag tgacgaccaa aaaagagatt agagaagtgc taggcattcc 5100
- tgaacggaca ttagataaat tgctgaaggt actgaaggcg aatcaggaaa ttttctttaa 5160
- gattaaacca ggaagaaatg gtggcattca acttgctagt gttaaatcat tgttgctatc 5220
- gatcattaaa gtaaaaaaag aagaaaaaga aagctatata aaggcgctga caaattcttt 5280
- tgacttagag catacattca ttcaagagac tttaaacaag ctagcagaac gccctaaaac 5340
- ggacacacaa ctcgatttgt ttagctatga tacaggctga aaataaaacc cgcactatgc 5400
- cattacattt atatctatga tacgtgtttg ttttttcttt gctgtttagc gaatgattag 5460
- cagaaatata cagagtaaga ttttaattaa ttattagggg gagaaggaga gagtagcccg 5520

- aaaactttta gttggcttgg actgaacgaa gtgagggaaa ggctactaaa acgtcgaggg 5580
- gcagtgagag cgaagcgaac acttgatttt ttaattttct atcttttata ggtcattaga 5640
- gtatacttat ttgtcctata aactatttag cagcataata gatttattga ataggtcatt 5700
- taagttgagc atattagagg aggaaaatct tggagaaata tttgaagaac ccgattacat 5760
- ggattggatt agttcttgtg gttacgtggt ttttaactaa aagtagtgaa tttttgattt 5820
- ttggtgtgt tgtcttgttg ttagtatttg ctagtcaaag tgattaaata 5870